

REMARKS

Claims 12, 14, 16, 17, and 19-27 are pending.

I. The obviousness rejections of independent claims 12, 14 and 23 in view of the combination of Farmiga, Vinther, and Takahashi is traversed because the USPTO's reasoning is factually incorrect.

Claims 12 claims:

“...fabricating at least two parts from which the light integrator can be assembled and which comprise surfaces provided as inner sides of the cavity;

providing reflective coating on at least the surfaces of the parts;

assembling and fastening the parts;

wherein the two parts are fabricated such that one of the two parts is provided with a projection for engaging in a cutout of the other part after assembly,

and wherein fastening is carried out by this following steps:

covering the assembled parts with shrink tubing, and;

shrinking the tubing until a suitable strength of the integrator is achieved for reducing a possible gap between said two parts in which light could be lost.”

Claim 14 claims:

said light integrator having a cavity with an inner reflective coating for conducting light;

said light integrator being composed of at least two parts whose surfaces, which face inward after assembly, are provided with said inner reflective coating prior to assembly;

wherein one part is provided with a projection engaging in a cut out of the other part after assembly; and

wherein the parts are held together by at least one piece of shrink tubing such that the parts contact one another to be practically light-proof.

As to Takashashi, the Office Action states at pages 3- 4 states that:

“Takahashi et al. teaches a heat shrinking tube (300, Figure 8) that may be wrapped around the junction of a suction tube (100 and a pipe(132) so that the suction tube and the pipe are joined and fastened to form *the desired optical pipe* with a cavity within (please see Figure 8, col. 14, lines 36-49). (*emphasis added*).

However, in Takahashi the suction tube 100 and the pipe 132 which are fastened by means of the heat shrinkage tube 300 (Fig. 8) are not optical elements at all as incorrectly alleged in the Office Action as quoted above. Therefore, the reasoning of the Office Action is incorrect.

In fact, neither the suction tube 100 nor the pipe 132 *comprise an inner reflective coating as claimed. Further, there is no description in Takahashi that the suction tube 100 and the pipe 132 are used as optical elements as alleged by the Office Action as quoted above.*

The only connection with the field of optics is that the suction tube 100 and the pipe 132 are parts of an endoscope, as shown in Fig. 2A. However, an endoscope is not only comprised of optical parts but also comprises mechanical parts as well. With respect to the optical parts of the endoscope, there is mentioned in column 3, line 65 to column 4, line 2 that the distal tip of the bending portion 4 of the insertion section 6 has a rigid portion 5 that is provided with viewing optics facing an imaging device (not shown) and illumination optics from which illuminating light will issue. Further, in column 4, lines 28 to 32, a light guide 17 is mentioned for ensuring illumination with light from the illumination optics. However, there is no description how light of the light guide 17 is transmitted to the illumination optics at the distal tip of the bending portion 4. In particular, it is not mentioned that the light is guided by means of the suction tube 100 and the pipe 132 or, for example, by means of the flexible tube 66 (Fig. 1) which is depressed onto the thick-walled part of the first portion 106 of the channel socket 97 by a heat shrinking tube 112 (column 9, lines 31 to 46, Fig. 3). In contrast, the flexible tube 66 is used for inserting medical instruments such as forceps (column 5, lines 18 to 20).

Finally, there is no optical connection between the imaging device and the grip 30 but an electrical connection (column 4, lines 55 and 56) so that neither the flexible tube 66 nor the suction tube 100 has to have an optical functionality.

As to the suction tube 100, it has also to be pointed out to column 5, line 30, mentioning

that the conduit 71 is used to apply suction. The conduit 71 is connected to the suction tube 100 as shown in Fig. 1.

**Therefore, the suction tube 100 and the pipe 132 are only mechanical parts having no optical function so that Takahashi cannot disclose that the suction tube 100 and the pipe form the desired optical pipe with a cavity within, as incorrectly stated on page 4, line 1 of the Office Action.**

Further, it is not understood why a fastening means with no filth-collecting gaps will be implicitly light-proof as mentioned on page 4, lines 5 and 6 of the Office Action. Applicants seasonably challenge such a personal assumption made by the Examiner, and demand that an affidavit of the Examiner or a statement of Official Notice be included as is required for such reasoning to be relied on according to MPEP 2144.03.

As mentioned above, the suction tube and the pipe are not used for any optical function, **but only for suction so that there is no need that the fastening means is provided such that the connection is light-proof.** In addition, it is very important for medical instruments, such as an endoscope, that they can be easily cleaned and, therefore, filth-collecting gaps have to be avoided. But this is a special need for medical instruments and has nothing to do with the problems in the claimed present invention with light integrators.

Independent claim 23 is rejected using the same erroneous reasoning regarding Takahashi at page 6, last paragraph, i.e., "so that the suction tube and the pipe are joined and fastened to form the desired optical pipe with a cavity within (please see Fig. 8, col. 14, lines 36-49)."

Therefore, independent claim 23 is also allowable.

**Therefore, all the limitations of independent claims 12, 14, and 23 are not taught or suggested by the combination of the three references because the rejection based on Takahashi contains factual errors so that for example one skilled in the art would not be motivated to combine Takahashi as alleged because optical elements are not being taught or suggested to be shrinked wrapped as erroneously alleged by the USPTO. Thus, there can be no motivation to combine or reasonable expectation of success taught or suggested for claim limitations that do not exist in the references but are merely incorrectly alleged to exist in the**

references. Therefore, as a prima facie case of obviousness has not been taught or suggested by the cited combination the requirements of 35 USC 103 have respectfully not been met as described in MPEP 706.02(j) which is reproduced below for the convenience of the Examiner. Therefore, claims 12, 14 and 23 are allowable. The remaining claims depend from these claims and are therefore also allowable.

Although the Examiner is respectfully believed to be well versed in the law of obviousness, and combination of references law, the relevant law is reproduced below for completeness of the record because the requisite 1. "motivation to combine," 2. "reasonable expectation of success" and 3. "teaching of all the limitations" reasoning was not provided in the previous Office Action as required under 35 USC 103.

In order to establish a *prima facie* case of obviousness under 35 USC 103 according to section 706.02(j) of the Manual of Patent Examining Procedure (MPEP) the following criteria must be met:

**The MPEP Standard for Combining/Modifying References**

The Manual of Patent Examining Procedure, section 706.02(j) sets forth the standard for combining and/or modifying prior art, and states:

To establish a *prima facie* case of obviousness, three basic criteria must be met. **First**, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Second**, there must be a reasonable expectation of success. **Finally**, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria. [Bold emphasis provided.]

The claims are also allowable for the following reasons:

**Vinther**

In regard to the claimed projection/cutout arrangement, Vinther is cited as teaching or suggesting same, in the Office Action. However, in Vinther, there is provided a mounting profile 14 which is only a mechanical part having no optical function.

In contrast thereto, in the present invention as claimed, the parts having the reflective coating are directly engaged with each other *without any further mechanical supporting element (such as a mounting profile).*

Therefore, the rejection is also factually incorrect for this reason as well.

**Farmiga**

As to Farmiga, it is stated in item 11 of the Office Action that the resultant force applied on the side will be zero and will not make the slabs move transversely (reference is made to Fig. 4C of Farmiga).

In Fig. 4C of Farmiga, there is shown a mounting/clamping assembly 37 (column 6, line 46 and column 7, line 8) which pushes against the slabs only in the vertical direction. The resulting force in the vertical direction is zero. In the transverse direction, there is no force applied by the mount.

However, if a shrinking tube is used instead of the mount 37, there are additional forces pushing the slabs 12 in the transverse direction against each other as applicant demonstrated in the previous response. These forces in the transverse direction lead to the transverse movement and the resultant force is only zero if the slabs 12 abut against each other which is not the case in Farmiga, (compare the right side of slab 12 to the left side of 12) and the slabs 12 can therefore move transversely and upset the chamber shape. Also, in Farmiga as the slabs 12 are not abutting against each other, and there is also no guarantee that the shrinkage would be perfectly uniform to be perfectly vectored to result in a zero net transverse movement of the slabs.

Therefore, an affidavit of the Examiner or Official Notice is required under MPEP 2144.03 as applicant seasonably challenges the Examiner's personal assumption of a net zero resultant movement.

On page 3, second paragraph, it is mentioned that the manner of engaging the mirrored slabs or the reflective surfaces to form the cavity does not really affect the function of the optical beam shape uniformizer and on page 8, item 12, it is mentioned that the manner of engaging the mirrored slabs are simply design features and; therefore, do not introduce any patentable or novel limitations to the claims. However, the claimed manner of engaging in combination with the shrink tubing leads to an integrator is most favorable with respect to manufacture, economy and reproducibility as mentioned on page 6, last paragraph to page 7 of the application as filed. This combination of the shrink tubing and the direct engaging of the optical parts forming the integrator is an important part of the present claimed invention. Therefore, an affidavit of the Examiner or Official Notice is required under MPEP 2144.03 as applicant seasonably challenges the Examiner's personal assumption.

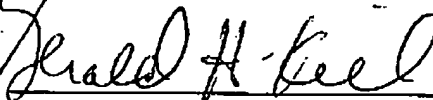
As to item 13 of page 8 of the Office Action, I stated above that Takahashi does not teach the use of heat shrinking tube for holding two elements for forming an optical pipe. Therefore, the Office action is respectfully incorrect.

Therefore, as the Office Action relies on factually incorrect reasoning to reject independent claims 12, 14 and 23 for the additional reasons stated above, the rejection is traversed herein. The dependent claims are therefore also allowable.

## II. Conclusion.

In light of the *FESTO* case, no argument or amendment made herein was related to the statutory requirements of patentability unless expressly stated herein. No claim amendment or argument made was for the purpose of narrowing the scope of any claim unless Applicant has explicitly stated that the argument is "narrowing." It is respectfully requested that all of the claims be reconsidered and allowed. An early and favorable action on the merits is respectfully requested.

Respectfully submitted,



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